REMARKS\ARGUMENTS

Drawings

A copy of the formal drawings are submitted herewith with a copy of the Letter to the Official Draftsperson. Approval by the Examiner is respectfully requested.

Claims 37-39 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite or failing to particularly point out and distinctly claim the subject matter that applicants regard as the invention.

Claim 37 is now amended by adding the steps of (1) fabricating a multichannel printhead, and (2)) using the multichannel printhead, exposing pixels of the photosensitive medium in a succession of exposures. In light of this amendment of claim 37, withdrawal of the §112, second paragraph, rejection of claims 37-39 is respectfully requested.

As taught in the instant specification at page 7, lines 14-29, the high numerical aperture needed with small lenses to collect sufficient energy to expose the photosensitive medium can be achieved through the use of array of lenses with aspheric surfaces. Most desirably, each lens is a compound lens that includes two elements, each having aspheric surfaces.

Accordingly, claims 1, 16, 37, 40, 45, and 50 are each amended to recite that the lens array comprises a plurality of compound lenses, each comprising a plurality of aspheric surfaces. Claim 35 is similarly amended to recite that the lens fitted into the housing is a compound lens comprising a plurality of aspheric surfaces.

Claims 7, 8, 26, and 27 are canceled; consequently, the dependencies of claims 9,10, 28, and 29 are amended.

Claims 1-2, 5, 7, 12-13, 35-38, 40, 44-47, and 49 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shimoda, US 6,208,829 ("Shimoda") in view of Sato, US 5,260,587 ("Sato"). In light of the foregoing amendment of the claims and the remarks that follow, this rejection is respectfully traversed.

Shimoda discloses an image forming apparatus with a printhead that includes an LED exposure array, an intervening light-transmitting fiber array

corresponding to the LED array, and a lens array focused to expose a photographic paper. The reference does not include a description of a housing for enclosing these arrays.

Sato discloses an optical semiconductor module that comprises an LED array, an array of lenses to focus the light from the LEDs on predetermined points, and an array of optical fibers positioned to receive the focused light, all of the arrays being contained in a case.

The dissimilar apparatus described in Shimoda and Sato both include a lens array, but neither reference teaches that this array comprises compound lenses and, more specifically, compound lenses each comprising a plurality of aspheric surfaces. Therefore the teachings of these two references in combination fail to render obvious the present invention, as defined by claims 1-2, 5, 7, 12-13, 35-38, 40, 44-47, and 49. Withdrawal of the §103(a) rejection of these claims is respectfully requested.

Claims 3-4, 6, 15, 39, 41, 43, 48, and 50 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shimoda in view of Sato, as applied to claims 1, 37, 40, and 54 above, and further in view of Pilossof et al., WO 02/47915 ("Pilossof"). In light of the foregoing amendment of the claims and the remarks that follow, this rejection is respectfully traversed.

The disclosures of Shimoda and Sato have been discussed above. Pilossof, which discloses an optical imaging head containing an LED array, is relied on for its teaching of a micro light pipe array that can be configured either as hollow light pipes with internal walls coated with a highly reflective coating or as optical fibers. However the reference contains no teaching of an array comprising compound lenses and, more specifically, compound lenses each comprising a plurality of aspheric surfaces. Therefore the teachings of Shimoda, Sato, and Pilossof in combination fail to render obvious the present invention, as defined by claims 3-4, 6, 15, 39, 41, 43, 48, and 50. Withdrawal of the §103(a) rejection of these claims is respectfully requested.

Claims 8-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shimoda in view of Sato, as applied to claims 1 and 7 above, and further in view of Velikov, US 2002/0131703 ("Velikov"). In light of the foregoing amendment of the claims and the remarks that follow, this rejection is respectfully traversed.

The disclosures of Shimoda and Sato have been discussed above. As noted in the Office Action, the purported superiority of high quality aspherical optics to cylindrical or ball lenses with regard to reliability of coupling is noted in [0006] of the background section of Velikov. This passing mention of an asserted characteristic, which has no relevance to applicants' invention, is the sole reference to aspherical optics in Velikov, which relates to a fiber-lens coupling system for connecting a bundle of individual optical fibers to a plurality of microlenses. As shown in FIG. 1, and described in [0023]-[0030], a lens array comprises a plate formed of optical material and having a plurality of convex microlenses on one side and a corresponding plurality of crater-like projections on the other, into which the cut ends of optical fibers are inserted, forming a gap-free connection with the flat bottom surfaces. The optical fibers are preferably secured in the craters by a UV-curable optical glue.

The convex microlenses depicted in FIG. 1 of Velikov are not compound lenses, nor are they characterized as aspherical. Therefore the teachings of this reference, in combination with those of Shimoda and Sato, clearly fail to render obvious the present invention, as defined by claims 8-11. Withdrawal of the §103(a) rejection of these claims is respectfully requested.

Claims 1, 14, 16-22, 24-26, and 31-34 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Harrigan et al., US 5,212,500 ("Harrigan") in view of Shimoda. In light of the foregoing amendment of the claims and the remarks that follow, this rejection is respectfully traversed.

Harrigan discloses a color proofing apparatus that includes a light source comprising a plurality of laser diodes and a printhead that is mounted on a translator member adjacent to a drum for transporting thermal print media. The printhead includes a cylindrical housing containing a linear array of optical fibers that extend from the laser diodes. Light from the diodes passes through a lens assembly that consists of a stationary lens and a moveable lens. As acknowledged in the Office Action, Harrigan fails to teach a lens assembly comprising a lens array arranged in a single correspondence with the laser diodes and optical fibers.

Shimoda, as noted above, discloses an image forming apparatus with a printhead that includes an LED exposure array, an intervening light-transmitting fiber array corresponding to the LED array, and a lens array focused to expose a photographic paper.

Neither Harrigan nor Shimoda teach a lens array comprising compound lenses, each of which comprises a plurality of aspheric surfaces. Therefore the teachings of these two references in combination fail to render obvious the present invention, as defined by claims 1, 14, 16-22, 24-26, and 31-34. Withdrawal of the §103(a) rejection of these claims is respectfully requested.

Claim 23 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Harrigan in view of Shimoda, as applied to claim 16 above, and further in view of Pilossov. In light of the foregoing amendment of the claims and the remarks that follow, this rejection is respectfully traversed.

The disclosures of Harrigan and Shimoda have been just been discussed. Pilossof is relied on for its teaching of a micro light pipe array that can be configured either as hollow light pipes with internal walls coated with a highly reflective coating or as optical fibers. However this reference, like the two other references cited in the rejection, contains no teaching of a lens array comprising compound lenses, each comprising a plurality of aspheric surfaces. Therefore the teachings of Harrigan, Shimoda, and Pilossof in combination fail to render obvious the present invention, as defined by claim 23. Withdrawal of the §103(a) rejection of claim 23 is respectfully requested.

Claims 27-30 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Harrigan in view of Shimoda, as applied to claims 16 and 26 above, and further in view of Velikov. In light of the foregoing amendment of the claims and the remarks that follow, this rejection is respectfully traversed.

The disclosures of all three of the references cited in this rejection have been extensively discussed above. None of them contains any teaching whatsoever of a lens array comprising compound lenses, each comprising a plurality of aspheric surfaces. Therefore the disclosures of Harrigan, Shimoda, and Velikov in combination clearly fail to render obvious the present invention, as defined by claims 27-30. Withdrawal of the §103(a) rejection of these claims is respectfully requested.

The Office Action included no explicit rejection of claim 42. On the presumption that claim 42 contains patentable subject matter, it is amended into independent form by including the limitations of claim 40, as amended.

Claims 1-6, 9-25, and 28-50 remain in this case, whose prompt allowance is earnestly solicited.

Respectfully submitted,

Attorney for Applicant(s)

Registration No. 29,134

Nelson A. Blish/tmp
Rochester, NY 14650
Telephone: 585-588-2720
Facsimile: 585-477-4646

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

Enclosures: Copy of Letter to Draftsperson
Copy of Formal Drawings
Fee Transmittal
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